

Implementing Respiratory Protection Programs in Hospitals

**A GUIDE FOR RESPIRATOR
PROGRAM ADMINISTRATORS**

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Occupational Health Branch

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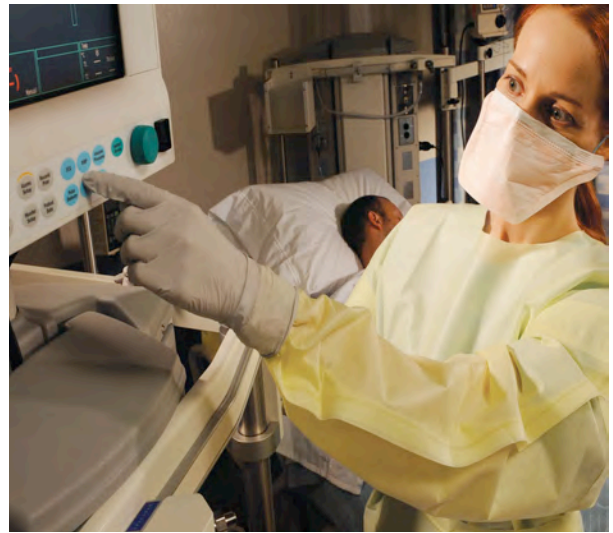
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Purpose of This Guide

This guide was developed to provide hospitals in California with a useful tool for developing and implementing effective respiratory protection programs, with an emphasis on protecting health care workers from aerosol transmissible diseases. It was prepared by the [Occupational Health Branch \(OHB\) of the California Department of Public Health \(CDPH\)](#) with funding from the [National Institute for Occupational Safety and Health \(NIOSH\) National Personal Protective Technology Laboratory \(NPPTL\)](#).

Hospitals are unique work environments with challenging occupational health and safety issues. Some large hospitals have health and safety personnel who are highly qualified to develop and implement appropriate policies and procedures to control workplace exposures. However, in many smaller facilities with more limited resources, the role of the health and safety professional might be taken on as an added responsibility by someone in the nursing, employee health, or infection control department. This guide is written as a practical, step-by-step manual that can be used by anyone who is charged with the task of setting up and maintaining a respiratory protection program.

This guide was developed with public funds, and you may reproduce any part of it in your policies and procedures. You may also make copies to share with your colleagues. The CD enclosed with this guide contains a set of electronic tools such as templates, sample forms, and educational materials. These are not copyright protected and are referred to in the guide wherever you see this icon of a CD in the margin. [This version includes links to these resources.](#)



Why Do Hospitals Need a Respiratory Protection Program?

Controlling Respiratory Hazards in the Health Care Setting

The hospital environment contains hazards such as bacteria, viruses, and chemicals that may be inhaled by workers and cause illness. Where there are chemical exposures, which can be measured, the standard approach to controlling exposure is to use a hierarchy of controls starting with substitution of less hazardous chemicals or products. Engineering controls (e.g., laboratory hood), administrative controls (e.g., triaging chemical emergency patients), and work practices (e.g., keeping chemical containers capped) are used to reduce concentrations of chemicals in the air and to reduce the number of employees and amount of time exposed. Respirators are used as a last resort when chemical exposures cannot be reduced to an acceptable level using these other methods.

In addition to chemical hazards, hospital employees may be exposed to aerosol transmissible diseases (ATDs), which are diseases or pathogens defined by Cal/OSHA as requiring airborne or droplet precautions. ATD hazards cannot be eliminated or substituted out of the hospital setting, cannot routinely be measured in the air, and have no established permissible exposure limits. In order to protect employees from ATDs, health care facilities must always implement a combination of engineering, administrative, and work practice controls, as well as providing for vaccination of employees and the use of personal protective equipment, including respirators.



Photo enhanced to make airborne droplets visible

Health care workers who care for patients with ATDs must work in close proximity to the source of the hazard, so even if the room has enhanced ventilation, they are likely to have a higher risk of inhaling infectious aerosols (particles). Exposure of these employees, and others with a higher risk of exposure related to

METHODS FOR CONTROLLING EXPOSURE TO AEROSOL TRANSMISSIBLE DISEASES

Minimize the number of employees exposed	Minimize the amount of infectious aerosol in the air	Protect employees who must be exposed
<p>Isolate suspected and confirmed cases of airborne infectious disease in negative pressure rooms, to separate the source from all employees not providing direct patient care.</p> <p>Use partitions, barriers, or ventilated enclosures to separate employees from the source of the hazard.</p>	<p>Place a surgical mask on suspected and confirmed ATD cases.</p> <p>Use closed suctioning systems to minimize the dispersion of aerosol.</p>	<p>Provide vaccinations.</p> <p>Use personal protective equipment (PPE), including respirators.</p>

the tasks they perform, can be reduced further by the proper use of respirators. See the box above for some examples of methods used for controlling exposures to ATDs in the health care setting.

Vaccination of health care workers is another key component in preventing disease transmission in hospitals, and employers in California are required to make certain vaccinations available to health care workers free of charge and at a time and place that is reasonable to employees. Hospital vaccination programs must include effective education about the benefits and risks of vaccination, but under Cal/OSHA regulations employees have the right to decline vaccination.

The Cal/OSHA Respiratory Protection Standard

In California, one of 25 states with a state-run OSHA program, employers must comply with the standards set by Cal/OSHA (Division of Occupational Safety and Health, California Department of Industrial Relations). State standards must be at least as effective as the analogous federal standard. [Cal/OSHA's respiratory protection standard, Title 8 CCR Section 5144](#), is equivalent to the federal standard ([29 CFR 1910.134](#)), and a copy is included on your CD. All California employers, including hospitals, who have workers who must use respiratory protection to control exposures to airborne



KEY REQUIREMENTS OF THE CAL/OSHA RESPIRATORY PROTECTION STANDARD

- ✓ Written respiratory protection program with policies and procedures
- ✓ Designation of a Program Administrator
- ✓ Procedures for hazard evaluation and respirator selection
- ✓ Medical evaluation of respirator wearers
- ✓ Fit testing procedures for tight-fitting respirators
- ✓ Procedures for proper use, storage, maintenance, repair, and disposal of respirators
- ✓ Training
- ✓ Program evaluation including consultation with employees
- ✓ Recordkeeping

contaminants, must comply with Section 5144. Federal workplaces in California are covered under the federal standard. See the box on the left for a summary of the key requirements of the standard.

The respiratory protection standard requires that all employers who must use respirators to control hazardous exposures have a comprehensive and effective respiratory protection program (RPP). The program must be in writing and is intended to specify the policies and procedures for the use of respiratory protection in the facility. Cal/OSHA requires each respiratory protection program to include several specific elements, but leaves the specifics of these policies and procedures up to individual employers. See the section “Developing a Respiratory Protection Program” for more information.

The Cal/OSHA Aerosol Transmissible Diseases Standard

On August 5, 2009, the [Cal/OSHA Aerosol Transmissible Diseases \(ATD\) Standard \(Title 8 CCR Section 5199\)](#) became effective. This standard is included on your CD. The standard applies to a variety of facilities, operations, and services where employees have the potential for occupational exposure to aerosol transmissible infectious diseases or pathogens. The ATD standard requires that respiratory protection be used to protect certain workers performing specific tasks and that the use of respirators comply with the respiratory protection standard. The ATD standard includes some exceptions to the fit testing and medical clearance sections of the respiratory protection standard, explained later in this guide. See the box below for a summary of the key requirements of the standard.



KEY REQUIREMENTS OF THE CAL/OSHA AEROSOL TRANSMISSIBLE DISEASES (ATD) STANDARD

- ✓ Written ATD Exposure Control Plan, including biosafety plan for laboratory operations
- ✓ Designation of a Plan Administrator
- ✓ Hazard evaluation and identification of occupationally exposed employees
- ✓ Exposure control procedures including respiratory protection
- ✓ Medical services
- ✓ Procedures for exposure incidents
- ✓ Surge procedures
- ✓ Training
- ✓ Plan evaluation and procedures for employee participation in review of plan
- ✓ Recordkeeping

Understanding Respiratory Protection

In order to understand how respirators can be used to protect health care workers, it is important to understand what a respirator is and what it is not. One important distinction that must be made when discussing respirator use in health care settings is the difference between **respirators** and **facemasks (including surgical masks and procedure masks)**. While respirators and facemasks are both called “masks” in many health care settings, they are very different in their design and in their purpose.



The purpose of a facemask is to reduce infectious particles being introduced into the room air by the person who is wearing the mask. The facemask is designed to catch droplets that are expelled by the wearer when he/she talks, sneezes, or coughs. This is extremely important in sterile environments, such as operating rooms, or when working with potentially immune-compromised patients. Facemasks are used as part of “droplet precautions” to prevent large droplets from entering the nose and mouth. However, facemasks by design do not seal tightly to the wearer’s face and do NOT prevent inhalation of small particles that may be transmitted from a patient by exhalation, coughs, or certain medical procedures. In addition, the filtration efficiency of facemasks varies greatly between models.



The purpose of a respirator is to protect the wearer by reducing the concentration of inhaled contaminants. In a hospital setting, these contaminants may come from processes using hazardous chemicals (e.g., sterilization or laboratory procedures), cleaning and maintenance activities, or from infectious patients who are exhaling, talking, sneezing, and/or coughing in the room in which the health care worker is working.



Your CD includes a [one-page flyer](#) and a short video in [English](#) and [Spanish](#) on the differences between facemasks and respirators, which is a great training resource. You might find that it is informative for your contract physicians as well as your staff.

Different types of respirators are designed to protect against different hazards. The type of airborne contaminant, its concentration, and its potential to cause a health effect in exposed workers dictate the type of respirator that must be worn. Respirators are available in many types, models, and sizes from several manufacturers for a variety of applications. All respirators used in the workplace must be tested by the manufacturer and approved by the National Institute for Occupational Safety and Health (NIOSH).



Described below are two major types of respirators: air-purifying respirators and atmosphere-supplying respirators.

Air-Purifying Respirators

Air-purifying respirators (APRs) work by removing gases, vapors, and particulates (mists and solid particles) or combinations of gases, vapors, and/or particulates from the air through the use of filters, cartridges, or canisters. To help employees identify the specific chemicals for which the cartridges are designed, all filters, cartridges, and canisters must be labeled and color-coded with a label approved by NIOSH. APRs with filters will remove particles (also called aerosols) from the inhaled air, while those with cartridges or canisters are designed to remove gases and vapors.





TYPES OF AIR-PURIFYING RESPIRATORS:

Non-powered respirators have a tight-fitting facepiece, which can be either a half mask that covers the nose and mouth or a full facepiece (covers the nose, mouth, and eyes). They may be reusable, elastomeric respirators that have replaceable filters or cartridges for removing contaminants, or disposable filtering facepiece respirators where the entire facepiece is made of filtering material. “N95 respirator” is a term used to refer to a filtering facepiece APR with an approved N95 filter. Approved N95 respirators are also available with surgical mask material on the outside to protect the wearer from splashes. See the box below for more information on different classes of NIOSH-approved filters.

CLASSES OF NIOSH-APPROVED FILTERS AND FILTERING FACEPIECE RESPIRATORS

Class	Description
N95	Filters at least 95% of airborne particles. Not resistant to oil.
N99	Filters at least 99% of airborne particles. Not resistant to oil.
N100	Filters at least 99.97% of airborne particles. Not resistant to oil.
R95	Filters at least 95% of airborne particles. Somewhat resistant to oil.
P95	Filters at least 95% of airborne particles. Strongly resistant to oil.
P99	Filters at least 99% of airborne particles. Strongly resistant to oil.
P100	Filters at least 99.97% of airborne particles. Strongly resistant to oil.

Powered air-purifying respirators (PAPRs) can have a tight-fitting facepiece or a hood, helmet, or other type of loose-fitting facepiece. PAPRs have a battery-powered blower that pulls the air in the room through filters (for particles) or cartridges (for gases/vapors) to clean it before delivering it to the breathing zone of the wearer.



Atmosphere-Supplying Respirators

Atmosphere-supplying respirators work by providing clean breathing air from an uncontaminated source. These respirators consist of a tight-fitting facepiece, a hood, a helmet, or other type of loose-fitting facepiece, and breathing air which is supplied by a compressor or a pressurized cylinder. They do not require filters or cartridges and will protect the wearer from all types of contaminants present (particles or gases/vapors). These respirators are less likely to be used in a hospital setting except, perhaps, by emergency responders or construction contractors.



See the box below for more information sources on respiratory protection.

MORE INFORMATION ON RESPIRATORS

CDPH-OHB Respirator Topic Page

www.cdph.ca.gov/programs/ohb/Pages/Resp.aspx

NIOSH National Personal Protective Technology Laboratory

www.cdc.gov/niosh/npptl

NIOSH Respirator Topic Page

www.cdc.gov/niosh/topics/respirators/

NIOSH Respirator Trusted-Source Page

www.cdc.gov/niosh/npptl/topics/respirators/dispart/RespSource.html

NIOSH Science Blog: N95 Respirators and Surgical Masks

blogs.cdc.gov/niosh-science-blog/2009/10/n95/

Federal OSHA Respiratory Protection Topic Page

www.osha.gov/SLTC/respiratoryprotection/index.html

Federal OSHA Respiratory Protection e-Tool

www.osha.gov/SLTC/etools/respiratory/respirator_selection.html

Cal/OSHA Guide to Respiratory Protection in the Workplace

www.dir.ca.gov/dosh/dosh_publications/respiratory.pdf

Developing a Respiratory Protection Program

Assigning Responsibility

A key component to a successful respiratory protection program (RPP) is the assignment of responsibilities for the implementation and administration of the program. Cal/OSHA requires that “the program be administered by a suitably trained program administrator.” Although the program administrator does not have to be a health and safety professional, he/she must have expertise in the principles of respiratory protection. See the box below for a list of training resources.

Performing a Hazard Evaluation

The purpose of the hazard evaluation is to identify potential exposures in the workplace that might require the use of respiratory protection so that these hazards can be quantified to the extent feasible and appropriate respiratory protection can be selected.

RESOURCES FOR TRAINING FOR RESPIRATOR PROGRAM ADMINISTRATORS

Respiratory Protection Course provided by the OSHA Training Institute at the UC San Diego Extension

osha.ucsd.edu/index.cfm?vAction=singleCourse&vCourse=FPM-40303

American Industrial Hygiene Association online course in Respiratory Protection Management

www.aiha.org/education/dl/Pages/RespiratoryProtectionManagementCurrentIssues.aspx

Center for Occupational and Environmental Health (COEH) at Berkeley—joint program involving UC Berkeley, UCSF, and UC Davis

www.coehce.org

Southern CA Education and Research Center—Continuing education at UCLA and UC Irvine

www.ph.ucla.edu/erc/ced.php

The hazard evaluation must be completed for all respiratory hazards, including chemical exposures as well as exposure to infectious diseases. In the case of infectious diseases, it is not generally feasible to quantify the level of exposure, nor is it known what level of exposure will cause infection in a specific individual. Therefore, selection of respirators for infectious diseases must be done according to anticipated exposure by task according to public health guidance and, in California, following the requirements of the Cal/OSHA ATD standard.

When conducting a hazard evaluation in the patient care setting, it is useful to start with the requirements of the ATD standard and systematically consider all of the activities in your units.

First, think about who will be in contact with patients who may have aerosol transmissible diseases, such as tuberculosis or influenza. These diseases are divided by Cal/OSHA into two categories: 1) airborne infectious diseases (AirlDs), which require airborne precautions; and 2) diseases requiring droplet precautions. See the boxes below and on the next page for complete lists of diseases covered under the ATD standard. Note that for laboratory operations, the ATD standard includes a separate list of pathogens that are transmitted by laboratory aerosols, and from which lab workers must be protected.

**CAL/OSHA ATD STANDARD—DISEASES/PATHOGENS
REQUIRING AIRBORNE INFECTION ISOLATION (designated in
the standard as “airborne infectious diseases” or AirlDs)**

Aerosolizable spore-containing powders such as Anthrax/Bacillus anthracis	Severe acute respiratory syndrome (SARS)
Avian influenza/Avian influenza A (strains capable of causing serious disease in humans)	Smallpox (variola)/Variola virus
Varicella disease (chickenpox, disseminated shingles)	Tuberculosis (TB)/Mycobacterium tuberculosis
Measles (rubeola)/ Measles virus	Novel or unknown pathogens as defined by the standard
Monkeypox/Monkeypox virus	Any other disease for which public health guidelines recommend airborne infection isolation

CAL/OSHA ATD STANDARD—DISEASES/PATHOGENS REQUIRING DROPLET PRECAUTIONS

Diphtheria pharyngeal	Pneumonia
Epiglottitis, due to <i>Haemophilus influenzae</i> type b	Adenovirus
<i>Haemophilus influenzae</i> Serotype b (Hib) disease/ <i>Haemophilus influenzae</i> serotype b—Infants and children	<i>Haemophilus influenzae</i> Serotype b, infants and children
Influenza, human (typical seasonal variations)/influenza viruses*	Meningococcal
Meningitis	<i>Mycoplasma</i> , primary atypical
<i>Haemophilus influenzae</i> , type b known or suspected	<i>Streptococcus</i> Group A
<i>Neisseria meningitidis</i> (meningococcal) known or suspected	Pneumonic plague/ <i>Yersinia pestis</i>
Meningococcal disease sepsis, pneumonia (see also meningitis)	Rubella virus infection (German measles)/Rubella virus
Mumps (infectious parotitis)/Mumps virus	Severe acute respiratory syndrome (SARS)
Mycoplasmal pneumonia	Streptococcal disease (group A streptococcus)
Parvovirus B19 infection (erythema infectiosum)	Skin, wound or burn, Major
Pertussis (whooping cough)	Pharyngitis in infants and young children
Pharyngitis in infants and young children/Adenovirus, Orthomyxoviridae, Epstein-Barr virus, Herpes simplex virus,	Pneumonia
	Scarlet fever in infants and young children
	Serious invasive disease
	Viral hemorrhagic fevers due to Lassa, Ebola, Marburg, Crimean-Congo fever viruses (airborne infection isolation and respirator use may be required for aerosol-generating procedures)
	Any other disease for which public health guidelines recommend droplet precautions

* Note: Seasonal influenza is the only disease requiring droplet precautions for which Cal/OSHA currently requires respirator use under certain circumstances. See the box on page 18 and the “Stay Informed” discussion starting on page 17.

The following questions should help to guide your thinking about who in your facility may be reasonably anticipated to be exposed to patients or other sources of aerosol transmissible pathogens. You may refer to the copy of the full [ATD standard](#) on your CD for a more complete definition of “occupational exposure” as it is used in the regulation.



- Who is exposed to suspected or confirmed cases of ATDs?
 - Who will greet and triage patients?
 - Who will provide care for ATD patients?
- Who will be performing **high hazard procedures** on these patients, on cadavers, or in laboratories? See the box below for a definition of high hazard (also known as “aerosol-generating”) procedures.
- Who will be cleaning the patient rooms?
- Do you have students or contractors (e.g., those who service ventilation systems), or temporary workers in your facility who are reasonably anticipated to be exposed to patients or equipment that may be a source of aerosol transmissible pathogens?

CAL/OSHA ATD STANDARD— HIGH HAZARD PROCEDURES DEFINITION

High hazard procedures are “procedures performed on a person who is a case or suspected case of an aerosol transmissible disease (or on a specimen suspected of containing an aerosol transmissible pathogen in a laboratory), in which the potential for being exposed to aerosol transmissible pathogens is increased due to the reasonably anticipated generation of aerosolized pathogens.”

Such procedures include, but are not limited to:

- ✓ Sputum induction
- ✓ Bronchoscopy
- ✓ Aerosolized administration of pentamidine or other medications
- ✓ Pulmonary function testing
- ✓ Autopsy, clinical, surgical, and laboratory procedures that may aerosolize pathogens.

- Who will be designated as a first receiver of victims exposed to unknown biological or chemical agents?
- Will physicians or others who are not hospital employees be included in your respirator program?

Based on an assessment of the potential exposure hazards, you will then make a determination regarding the minimum level of respiratory

protection required for these exposures. Will you require N95s? Will you require PAPRs? This topic will be discussed further in the section on “Respirator Selection”.

Next, think about other hospital employees who may have exposure to respiratory hazards other than ATDs.

- Are there housekeeping or maintenance personnel who are exposed to chemicals used in cleaning, repairs, or facility maintenance?
- Is anyone in Central Supply exposed to hazardous chemicals used in disinfection or sterilization?
- Are there research or clinical laboratories with staff who will need respiratory protection?

If you have employees with exposures to hazards other than infectious diseases, you must determine whether or not to have one umbrella RPP covering all respirator use, or whether you might want two different programs—one for chemical exposures and the other for ATD exposures that can be incorporated into your ATD

ESTABLISH POLICIES REGARDING NON-EMPLOYEES

Because hospitals often have many people working in them who are not direct employees of the hospital, you must also consider what your policy will be regarding employees of other employers, such as physicians, students, contractors, and registries or other agencies. Although they may not be employed directly by the hospital, your facility will likely share some responsibility for ensuring their protection. Generally, all people working in the hospital should be required to follow your policies regarding infection control, including respirator use. There should be a clear agreement about who is responsible for implementing all elements of the respirator program for these people (specify this in your written policy).

See the following web sites for Cal/OSHA policies and procedures for dual employer and multi-employer sites.

- ✓ www.dir.ca.gov/doshpol/p&pc-1c.htm
- ✓ www.dir.ca.gov/doshpol/p&pc-1d.htm

Exposure Control Plan. Either choice is acceptable. You may want to administer a program for personnel with exposures other than ATDs out of your Health and Safety Office, but designate the responsibility of ATD exposure control, including an RPP for ATDs, to the Infection Control Department.

The next part of the hazard assessment is the measurement of air concentrations of hazards to which employees are exposed. We do not currently make direct measurements of concentrations of infectious aerosols in air as we do with many hazardous substances. Instead, we estimate levels of exposure based on the task or procedure being performed, as well as on the suspected disease risk. For chemical exposures, airborne concentrations should be measured in order to determine the level of respiratory protection that will be needed to reduce the exposure to acceptable levels. If you have employees exposed to hazards other than infectious diseases and do not have the expertise in-house to do the appropriate air sampling, an industrial hygiene consultant can be used.

American Industrial Hygiene Association (AIHA) List of Consultants
webportal.aiha.org/Custom/ConsultantsSearch.aspx

You may also ask for help with air sampling for exposures other than ATDs from your workers' compensation insurance carrier or from the Cal/OSHA Consultation Service (1-800-963-9424).

Developing Policies and Procedures

Once you have determined who will administer the program and which employees will be included, you are ready to develop the written policies and procedures that will make up your written RPP. The RPP must have a section that addresses each of the elements described below. There is a [template for a written RPP](#) specifically designed for hospitals on your CD. You may find that customizing this template is the easiest way to develop your written program. If you choose to do this, it is best to use this guide and the template together. The following sections go through the process of developing each of the required elements of your written program.



Respirator Selection

In this section of your written RPP, you should document the results of your hazard evaluation and determine which types of respirators will be used by specific staff or job titles, and for specific tasks or procedures. You may want to put all of this information into a table

or spreadsheet either in the body of your written program, or as an appendix. The ATD standard establishes minimum respirator requirements for certain tasks and infectious agents. However, employers are always responsible to assess respiratory hazards, and the requirements in the ATD standard are only minimum requirements.

Minimum Respirator Requirements in the ATD Standard

Employees who perform any of the following activities must wear **at least an N95 respirator**:

- Enters an airborne infection isolation (All) room or area in use for All;
- Is present during the performance of procedures or services for an AirID case or suspected case;
- Repairs, replaces, or maintains air systems or equipment that may contain or generate aerosolized pathogens;
- Is working in an area occupied by an AirID case or suspected case, during decontamination procedures, or after the person has left the area and the room air has not yet been adequately ventilated to clear contaminants;
- Is working in a residence where an AirID case or suspected case is known to be present;
- Is present during the performance of aerosol generating procedures on cadavers that are suspected of, or confirmed as, being infected with aerosol transmissible pathogens;
- Is performing a task for which the Biosafety Plan or Exposure Control Plan requires the use of respirators; or
- Transports an AirID case or suspected case within the facility or in an enclosed vehicle (e.g., van, car, ambulance or helicopter) when the patient is not masked.



N95 filtering facepiece respirators are approved by NIOSH to reduce exposures to airborne contaminants to one tenth of the concentration that is in the air, which is considered the recommended level of protection for routine patient care.

Any employee performing a **high hazard procedure on a confirmed or suspected AirID case**, or who is in the area where the procedure is being performed, can be exposed to much higher concentrations of aerosol. These employees must wear a respirator

providing at least as much protection as a **powered air purifying respirator (PAPR) with a high efficiency particulate air (HEPA) filter**, unless the employer has determined that this would interfere with the successful performance of the task (must be documented in ATD Plan) or the procedure is performed with the patient in a ventilated enclosure.



A PAPR with a loose-fitting hood and a HEPA filter is expected to reduce exposure to airborne contaminants to 1/25th of the concentration in the room.

Starting with the 2010–2011 influenza season, any employee performing a high hazard procedure on a patient with confirmed or suspected seasonal influenza must wear at least an N95 respirator even though influenza has previously been considered a disease requiring only droplet precautions (surgical mask). See the [CDC](#), [CDPH](#), and [Cal/OSHA](#) flu guidance documents on your CD.



The Respirator Selection Guide for Aerosol Transmissible Diseases

included on your CD and in the box on page 18 will be useful in making appropriate respirator selections for specific diseases and tasks, and for training your staff on respirator use.



Stay Informed as Public Health Guidance is Updated

Keep in mind that Cal/OSHA respirator requirements to protect against infectious diseases are based on guidance from the Centers for Disease Control and Prevention (CDC) and/or CDPH. It is important to stay informed about any changes in public health guidance as new pathogens emerge or relevant new scientific information becomes available. You will then need to consider how your facility's policies and practices may need to change.

For example, [CDC](#) issued updated guidance on infection control for the 2010-11 seasonal influenza, which was followed by guidance from [CDPH](#) and [Cal/OSHA](#) (copies are on your CD). CDC recommended that health care workers don a facemask during patient care involving suspected or confirmed influenza, rather than N95 respirators as were used for 2009 H1N1 influenza. Recognizing that the use of a facemask instead of a fit tested N95 respirator may increase the risk of influenza



RESPIRATOR SELECTION GUIDE FOR AEROSOL TRANSMISSIBLE DISEASES

The employer is responsible for selecting a respirator appropriate for the hazard and the environment.

Disease	Job Task	Respirator
Airborne infectious disease* (suspected or confirmed)	Routine patient care & support operations	At least N95
	High hazard procedures**	At least PAPR
Seasonal influenza (suspected or confirmed)	Routine patient care & support operations	In accordance with facility policy; CDPH recommends at least permitting optional N95 use
	High hazard procedures**	At least N95
Other diseases requiring droplet precautions***	In accordance with facility policy	

* See list on page 11

** See definition on page 13

*** See list on page 12

transmission to health care workers, both CDPH and Cal/OSHA have encouraged health care facilities to continue to include all employees who have direct contact with influenza patients in their respiratory protection program, and to provide fitted respirators to employees who may request to use them in place of facemasks. This is particularly important for employees who may be immunologically compromised or have other reasons to want to minimize their risk of contracting influenza. A respirator policy such as this will both make respirators

available to employees who wish to protect themselves against influenza and help to ensure that preparedness is maintained against other infectious disease threats that may arise.

CDC also recommended the use of respiratory protection at least as effective as fit tested N95 respirators, as well as airborne infection isolation, when high hazard (aerosol-generating) procedures are performed on patients with suspected or confirmed influenza. CDPH concurred with this new recommendation, and Cal/OSHA stated it would enforce these recommendations. This recommendation raises the issue of whether respirator use during high hazard procedures should also be considered for other infectious diseases (e.g., pertussis, meningococcal disease) that currently call for droplet precautions.

PAPRs Used by First Receivers

You may also have employees who have been designated First Receivers for emergency response purposes. These employees are expected to decontaminate or provide initial care for victims of a biological or chemical emergency. Because their exposures may be to unknown substances, hospital First Receivers are required to use the most protective type of PAPR equipped with a filter and chemical cartridge. These PAPRs have a tight-fitting full-facepiece, or a hood or helmet with a collar or inner shroud, and a combination HEPA filter and chemical cartridge. They must be a type that will reduce the exposure of the wearer to 1/1000th of the concentration that is in the air.



Use of Respirators in Sterile Environments

Yet another consideration is which respirators to use for high hazard or other procedures conducted in operating rooms or other sterile environments. There is some concern that exhaled air from wearers of PAPRs (or N95 filtering facepieces with exhalation valves) can flow into the sterile environment. Some possible options for addressing this issue are to:

- Wear a surgical mask underneath the PAPR hood;
- Choose a PAPR that permits the hood to be placed under a surgical gown; and

- Avoid the use of filtering facepieces with exhalation valves in sterile environments.

Respirators for Chemical Gas or Vapor Hazards

It is important to note that N95 filtering facepiece respirators and PAPRs with only HEPA filters should not be used to protect the wearer from gas or vapor exposures. N95 and HEPA filters are designed to remove

particles from the air, but will do nothing to remove glutaraldehyde, formaldehyde, ethylene oxide, or other gases or vapors.

If you need help selecting respirators for exposures to hazards other than infectious agents, the following resources will be helpful in making your selection.

NIOSH Respirator Trusted-Source Information Page: www.cdc.gov/niosh/npptl/topics/respirators/dispart/RespSource.html

Federal OSHA Respirator e-Tool: www.osha.gov/SLTC/etools/respiratory/index.html

Learn how to select appropriate respirators and develop a change schedule for cartridges.

Respirator Use

In this section of your written RPP, describe your facility's policies regarding the use of respirators. Include detailed procedures for the routine use of respirators. For example, describe proper inspection and donning procedures and state that users will always perform a user seal check whenever they don a tight-fitting respirator. Describe proper doffing procedures, including the importance of the sequence

SUMMARY OF RESPIRATOR SELECTION CONSIDERATIONS

- ✓ Determine who has potential occupational exposure to ATDs.
- ✓ Use the ATD Standard requirements and public health guidelines in choosing the appropriate level of protection for each task.
- ✓ Make sure the respirators you have selected provide the appropriate level of protection. For example, make sure the PAPRs used by First Receivers have an assigned protection factor of 1000. Consult your supplier if you have questions about the level of protection provided.
- ✓ Make sure that the chosen respirator is not putting the patient at risk and that use is consistent with other infection prevention policies.
- ✓ Stay aware of changes in respirator selection guidance.

of removal of the respirator with other PPE so as to avoid self-contamination (see the [CDC slide show](#) on your CD).



In order to clearly state your policies for respirator use, it might be helpful to answer the following question. What will your policy be for employees with facial hair or other conditions that prevent a good seal to the face? Employees who use tight-fitting respirators are not permitted to have facial hair that interferes with the facepiece seal. Hospitals may also provide PAPRs to employees who have facial hair, or for whom other respirators available at the facility do not provide an acceptable fit. This is acceptable as long as they consistently use the PAPR when required, have been trained in its use, and the PAPR provides adequate protection for the specific hazard.

List the reasons for which an employee might leave a contaminated area to adjust or replace their respirator. These should include problems with the use of the respirator such as difficulty breathing, loss of face seal, gross contamination or saturation of the filter material, etc. This list should include a policy that wearers of reusable respirators with chemical cartridges must leave the contaminated area to replace the cartridges when they detect breakthrough of the contaminant or because the usable service life has been reached.



Storage, Maintenance, Repair, and Disposal

This section should have very detailed and specific procedures that apply to N95s, PAPRs, and any other type of respirator used.

- Where are the respirators stored?
- Who maintains them?
- Who makes sure there are enough of them?

Most hospitals keep carts of N95s on the floor of each unit, or at least outside the isolation rooms, while PAPRs are often kept in Central Supply and are ordered when needed for high hazard procedures (see one hospital's example of a [PAPR procurement procedure](#) on your CD). Some hospitals have decided that since most high hazard procedures will be done by the respiratory therapy department, the PAPRs will be stored there. Some hospitals issue PAPR hoods to individuals, who are responsible for maintaining them, while Central Supply or Materials Management is responsible for decontaminating PAPR pumps and





charging batteries. Whatever you decide works best for your facility should be described here.

CDPH recommends discarding N95 respirators after each use. Re-use was common practice during the 2009 H1N1 pandemic due to shortages of N95s statewide. However, these respirators are designed for a single use and, after routine use, should be removed with minimal handling and disposed of properly. Hand hygiene should always be performed after removing a respirator.

You should also describe procedures to follow when users discover problems with respirators.

- To whom do they report the problem?
- Who does the repairs?
- Who decides when to discard a reusable respirator and replace it rather than trying to repair it?
- What are the procedures for disposal of used or damaged N95s?

Medical Evaluations

The respirator standard requires that employees be medically evaluated and cleared for respirator use prior to wearing a respirator or being fit tested. Respirators cause an increased resistance to breathing and there can be a build-up of carbon dioxide inside the facepiece. This can lead to medical complications in some individuals for whom it may not be safe to wear a respirator. It may also be unsafe for someone with moderate to severe claustrophobia to wear a respirator. Medical evaluations must be provided by the employer during work time and at no cost to the employee.

The standard requires medical clearance prior to initial respirator use and when there is a change in health status, and otherwise allows the employer's health care provider to determine if more frequent medical evaluations are necessary. Many hospitals, however, elect to do medical clearance annually as part of an annual occupational medicine evaluation.

Employers must provide the medical professional evaluating the employee with a description of the type and weight of respirator to be used, the duration and frequency of use, the expected physical work

effort, additional protective clothing and equipment to be worn, and temperature and humidity extremes that may be encountered. This information is critical to the medical professional's determination regarding the employee's ability to use a respirator.

Appendix C of the respirator standard (included on your CD) is a questionnaire that includes information that must be reviewed by a physician or other licensed health care provider (PLHCP) either in questionnaire format, or in person during a visit to the PLHCP. The PLHCP might be within the hospital, but may be a contracted provider for hospitals that do not have internal occupational health services. The best outside sources for such evaluations are occupational medicine providers or clinics such as members of the Association of Occupational and Environmental Clinics (AOEC). A membership roster is available at www.aoec.org/directory.htm. These clinics provide medical clearance for respirator use, may provide fit testing services, and meet certain criteria for quality patient care.



The ATD standard has an alternative medical evaluation questionnaire (**Appendix B to the standard**; included on your CD) that can be used by health care workers using respirators only for protection against ATDs. It is shorter than the one in the respirator standard.



Make sure you are clear which questionnaire will be used and where it will be sent for evaluation, and describe these procedures in your written RPP. The completed questionnaires are considered medically confidential, so there must be a procedure by which they are confidentially provided to the PLHCP. Completed questionnaires should be maintained as confidential medical records (see Recordkeeping section).

Based on the answers to the questionnaire, as well as on a physical exam or any other tests the PLHCP deems necessary, the PLHCP must make a determination as to whether the individual can safely wear the respirator. The PLHCP must inform the employer (respirator program administrator or supervisor) in writing whether the individual is cleared for respirator use, cleared with certain conditions or restrictions (e.g., only for PAPR use, only for limited duration, etc.), or not cleared for respirator use, and



whether there is a need for a follow-up medical evaluation. The details of the medical evaluation, including specific medical diagnoses or test results should not be shared with the employer. A clear policy as to what will be done if someone is not cleared should be included in the program. Employees who are not cleared for respirator use cannot be exposed to situations in which a respirator is necessary to protect them. If the PLHCP specifies that a person designated to use an N95 or other non-powered air purifying respirator must use a PAPR due to a health risk, the employer must provide a PAPR to that person.

Fit Testing

Fit testing is required for all users of respirators with tight-fitting facepieces. The fit test ensures that, when donned properly, the selected brand and size of respirator fits adequately to protect the wearer from excessive inward leakage of contaminant through the face seal. The fit test must be repeated annually and whenever there are any changes such as weight gain or weight loss that would alter the fit of the facepiece. In California, for employees who only use respirators to protect against infectious aerosols under Section 5199 and who do not perform high hazard procedures or work in the laboratory or emergency response, the ATD standard allows for fit testing every 24 months until January 1, 2014. However, in any year that no fit test is conducted, you are required to administer a screening questionnaire (found in [Appendix G of the standard](#) and included on your CD) to determine whether another fit test should be done. The fit test must always be completed if there are potential changes in fit, or if requested by the employee.



Fit testing is one of the most important parts of the respirator program because it is the only recognized tool to assess the fit of a specific respirator model and size to the face of the user.



Describe your procedures for coordinating fit testing for your staff, as well as the specific, detailed fit testing protocol that will be used. [The Cal/OSHA Respiratory Protection Standard Appendix A](#) (included on your CD) has specific protocols which must be followed exactly in fit testing employees for respirators, and it is acceptable to copy and paste one or more of these into your RPP. First, there are general requirements that pertain to selecting an appropriately sized respirator, some basic training on donning the respirator and performing a user seal check, and descriptions of the specific exercises that are to be performed during the fit test to verify an adequate seal during several

routine work activities.

Second, there are detailed protocols for four different “qualitative” fit tests and three “quantitative” fit tests from which you may choose.

Qualitative Tests: Two of the qualitative fit test protocols specified in the standard—the saccharin and Bitrex® tests—may be used for fit testing N95 respirators. In the saccharin and Bitrex® tests, the user is exposed to a saccharin (sweet-tasting) or Bitrex® (bitter-tasting) aerosol. It is up to the test subject to let the tester know if he/she tastes the test aerosol at any time. Because these tests rely on the user’s subjective detection of leakage when challenged with a test agent, the protocols require pre-screening to determine each user’s ability to detect the specific test agent. Because of the subjective nature of these tests, they may be somewhat less reliable than the quantitative tests.



Quantitative Tests: There are three approved quantitative fit tests. These all require an investment in relatively expensive equipment for measuring the concentration of test aerosols or particles in ambient air, or for calculating leakage from changes in pressure in the facepiece of the respirator. The most common quantitative protocol used in hospitals is the ambient aerosol condensation nuclei counter (CNC) test. This test can be used for all types of respirators and provides an automated calculation of fit factor by simultaneously measuring and comparing the concentration of airborne particles both inside and outside the facepiece. The equipment needed for this type of testing is expensive (currently over \$12,000).



It is critical that the person conducting the fit testing follows the protocol as written in the standard. Most hospitals do qualitative fit testing using either the saccharin or Bitrex® protocol. There may be some, however, who do quantitative fit testing.

It is the Program Administrator's responsibility to ensure that the person conducting the fit tests is competent. There is no licensing or certification required for someone to do fit testing. Anyone can do it as long as they understand how to follow the protocol and are skilled at training people on how to don and doff their respirator and perform a user seal check. In some hospitals, the Employee Health Department or an occupational health clinic is responsible for both medical evaluations and fit testing, and they can be done in one visit. In other hospitals, the Infection Preventionist is responsible for fit testing the nurses with N95s. Still others train each of the unit managers to fit test their own staff so that one person is not charged with fit testing hundreds of employees. Some hospitals do all of their fit testing and training in one month. Others spread it out so that each employee is tested during their anniversary month. You should decide which approaches work best for you and your facility.



Once employees have been fit tested, it is a good idea to implement a mechanism to help them to remember which respirator they are supposed to wear. Some hospitals issue [wallet-sized cards](#) (see the example on your CD), while others provide stickers for the back of employee badges.



Fit testing takes time, but it is critical to ensure the safety of the employees relying on their respirators for the expected degree of protection. Again, if this is too much time and effort for hospital personnel, there are [consultants who provide fit testing services](#) (see the list included on your CD). In addition to the industrial hygiene consultants who do this, some of the respirator manufacturers will provide train-the-trainer services so you can have multiple in-house staff with these skills. There are also some workers' compensation insurance companies who may provide similar assistance to their customers.

SUMMARY OF FIT TEST REQUIREMENTS

- ✓ All employees required to wear respirators must be fit tested prior to respirator use and annually thereafter starting in 2014. Until then, employees using only N95 filtering facepieces and not performing high hazard procedures may be fit tested every other year, but must be given a screening questionnaire in the years not fit tested.
- ✓ An approved fit test protocol must be used. This may be a qualitative test using Bitrex® or saccharin, or a quantitative test using a droplet nuclei counter.
- ✓ The protocol must be followed exactly as it is written in the standard, but may be performed by any individual qualified to follow the protocol and to train the employee in the proper donning and doffing of the respirator.
- ✓ Records of fit tests must be kept on file until the next annual test is performed, and you must make sure that employees use only the respirators for which they have passed a fit test.
- ✓ There is no fit test requirement for PAPRs with loose-fitting hoods or helmets.

Training

Employee training is a critical component of an effective RPP that requires significant time and resources to conduct initially, prior to respirator use, and at least annually thereafter. Some hospitals choose to combine the training with the fit testing because one training requirement is that the employee be able to demonstrate knowledge of how to inspect, put on, remove, and check the seal of the respirator. Also, this way, the employee can attend one appointment where he/she will get refresher training, be fit tested, and perhaps provide feedback for the annual program evaluation all at one time. Some hospitals include respirator training as part of a skills day for their nurses and require them to pass a competency test.

This section of your written program must include both the mechanism for getting everyone trained in a way that they can understand and a description of the curriculum, including all of the topics that are required by the standard to be covered. These are:

- Why the respirator is necessary (including when it must be worn);

- Why proper fit, usage, and maintenance is crucial to its effectiveness;
- What the limitations and capabilities of the respirator are;
- How to use the respirator in emergencies if appropriate;
- How to inspect, put on, remove, use, and check the seal of the respirator;
- What the procedures are for storage and maintenance;
- How to recognize medical signs or symptoms that limit or prevent the safe, effective use of respirators; and
- The general requirements of the respirator standard.



There are a number of [educational tools](#) (including slide presentations, posters, and flyers) on the CD included with this booklet. You may use these materials during your annual training and as needed year round to make sure that employees are up-to-date on their knowledge of respiratory protection and its proper use. However, you must ensure that respirator users are fully trained on the specific risks and programs and procedures at your hospital.

Recordkeeping

The respirator standard requires that several types of records be maintained. The written RPP must be maintained in a location that is accessible to all program participants, and it must be made available to Cal/OSHA on request. We recommend documenting the changes that are made to the RPP along with any evaluation checklists that are completed during program evaluation (see next section). The current program, however, can be kept online for access by participants.

You must also keep a record of the employee medical evaluations. The questionnaires and any notes from physical exams are medically confidential, so these are often maintained by the PLHCP who does the medical clearance evaluations. They must be maintained for 30 years after termination of employment. The medical clearance letters that are provided by the PLHCP should be kept on file by the Respirator Program Administrator (RPA) as evidence that the employee has been cleared. It would make sense to keep these with the fit test records.

Fit test records must be kept on file until a new fit test is completed, so there should always be a record for each employee indicating that they have passed a fit test, or have been screened for the need to be fit tested, within the last 12 months. The respirator standard requires the

following information to be kept in the fit test record:

- Name or employee ID;
- Type of fit test performed;
- Specific make, model, style, and size of respirator tested;
- Date of test; and
- Pass/fail result from qualitative test or printout from quantitative test.

There is a [sample fit test record form](#) and a [printable fit test verification card](#) included on your CD.



Program Evaluation

Regular program evaluation is required by the standard and critical to successful implementation. There should be a section in your written program that describes how you will accomplish evaluating the implementation and effectiveness of your program. The standard does not require this to be done at specific intervals (i.e., annually). It requires that the workplace be evaluated as necessary to ensure that the provisions of the written program are being implemented effectively. It also requires that the employer regularly consult employees to assess their views on the effectiveness of the program.



This means that the respirator program administrator, or whoever has been designated to evaluate the program, has to go out into the units and observe practices and talk to the staff. The systems in place to manage respirator use should be evaluated to ensure that they support the behaviors you expect to observe among employees. If someone is not using a respirator when they are supposed to, consider all the possibilities why this may be happening. Some hospitals use a labor-management health and safety committee to tap into the knowledge and experience of employees and obtain feedback and suggestions for improvements.

Any deficiencies in the implementation of policies and procedures that are discovered as a result of evaluation must be corrected immediately. In some cases, this might mean revising the written program to

conform to actual practices as long as the procedures being followed comply with the standard. In other cases, it might mean re-training personnel on some aspect of the program, or assigning a PAPR to someone who had been using an N95, but has since grown a beard.



An [evaluation checklist](#), with instructions on how to use it, has been included on your CD to make the process of evaluation a bit easier as well as more standardized and comprehensive. You are not required to use a checklist, but it would be a great way to make sure you do the evaluations and to track any improvements you make. Although the respiratory protection standard does not establish a specific interval for program review, the ATD standard requires that the ATD exposure control program be reviewed annually, and requires the participation of employees in that review. Therefore, when employees use respiratory protection for infectious agents, the RPP should be reviewed annually as part of the ATD program review.

Glossary

Airborne Infectious Disease (AirID)—Either: 1) an aerosol transmissible disease transmitted through dissemination of airborne droplet nuclei, small particle aerosols, or dust particles containing the disease agent for which All is recommended by the CDC or CDPH, as listed in Appendix A of the ATD standard, or 2) the disease process caused by a novel or unknown pathogen for which there is no evidence to rule out with reasonable certainty the possibility that the pathogen is transmissible through dissemination of airborne droplet nuclei, small particle aerosols, or dust particles containing the novel or unknown pathogen.

APR: Air purifying respirator—see page 7 for detailed explanation.

ATD: Aerosol transmissible disease—includes both airborne infectious diseases (AirIDs) and diseases requiring droplet precautions.

Facemask—This term refers to masks used by health care providers to protect patients from aerosols or droplets expelled by the health care provider while talking, sneezing, coughing, etc. These include both surgical masks and procedure masks. Facemasks may also be placed on ill patients to contain their respiratory secretions from coughing, talking, etc., which reduces exposure to others.

Facepiece—This is the part of a respirator that covers the nose and mouth of the wearer. Respirators may have half facepieces covering just the nose and mouth, or they may have full facepieces covering the nose, mouth, and eyes. Facepieces may be either loose-fitting, such as a hood or helmet, or they may be tight-fitting, requiring a tight face-to-facepiece seal for proper functioning.

N95—This is a type of NIOSH approved filter, which filters at least 95% of airborne particles. The term N95 respirator refers to a filtering facepiece respirator with this level of NIOSH certification.

PAPR: Powered Air Purifying Respirator—An air purifying respirator that uses a blower to force air through filters or cartridges and into the breathing zone of the wearer. This creates a positive pressure inside the facepiece or hood, providing more protection than a negative pressure APR.

PPE: Personal protective equipment—including respirators, gloves, goggles, faceshields, etc.

Respirator—A device worn over the nose and mouth to protect the wearer from hazardous materials in the breathing zone. Respirators must be approved by the National Institute for Occupational Safety and Health (NIOSH) for the purpose for which they are used.

RPP: Respiratory Protection Program—Program required by Cal/OSHA under the respiratory protection standard that includes development and implementation of detailed policies and procedures for respirator use for control of respiratory hazards.

RPA: Respirator Program Administrator—Individual designated to administer a facility's respiratory protection program (RPP).

List of CD Contents

Cal/OSHA Standards and Appendices

Cal/OSHA Respiratory Protection Standard (full standard)

[Respiratory Protection Standard Appendix A: Fit Test Protocols](#)

[Respiratory Protection Standard Appendix B-1: User Seal Check Procedures](#)

[Respiratory Protection Standard Appendix B-2: Respirator Cleaning Procedures](#)

[Respiratory Protection Standard Appendix C: Medical Evaluation Questionnaire](#)

[Respiratory Protection Standard Appendix D: Information for Voluntary Users](#)

Cal/OSHA Aerosol Transmissible Diseases Standard (full standard)

[ATD Standard Appendix A: Aerosol Transmissible Diseases/Pathogens](#)

[ATD Standard Appendix B: Alternate Medical Evaluation Questionnaire](#)

[ATD Standard Appendix C-1: Vaccination Declination Statement](#)

[ATD Standard Appendix C-2: Seasonal Influenza Vaccination Declination Statement](#)

[ATD Standard Appendix D: Aerosol Transmissible Pathogens—Laboratory](#)

[ATD Standard Appendix E: Aerosol Transmissible Disease Vaccination](#)

[ATD Standard Appendix F: Sample Screening Criteria \(if health care provider unavailable\)](#)

[ATD Standard Appendix G: Information for Respirator Fit Test Screening](#)

Public Health Guidance Documents for Influenza and Respirator Use in Health Care Facilities

[CDC Prevention Strategies for Seasonal Influenza in Healthcare Settings](#)

[CDPH Guidance on Influenza Prevention \(11/5/10\)](#)

[Cal/OSHA Guidance for the 2010-2011 Influenza Season \(11/5/10\)](#)

Administrative Tools for Hospitals

[Written Respiratory Protection Program Template](#)

[List of Links—Useful Web Sites](#)

[List of Consultants Performing Fit Testing Services](#)

[Respiratory Protection Program Evaluation Checklist & Instructions for Use](#)

[Sample Respirator Fit Test Record](#)

[Sample Respirator Fit Test and Training Verification Card](#)

[Sample PAPR Program Flow Chart developed by a Hospital in California](#)

Training Tools and Educational Materials

[Respirator Selection Guide for Aerosol Transmissible Diseases](#)

[List of Links—Useful Web Sites](#)

[CDC Powerpoint presentation: Guidance for the Selection and Use of PPE](#)

[CDPH Powerpoint presentation: Fit Test Principles](#)

[OSHA video: Difference Between Respirators and Surgical Masks—English](#)

[OSHA video: Difference Between Respirators and Surgical Masks—Spanish](#)

[OSHA video: Donning and Doffing—English](#)

[OSHA video: Donning and Doffing—Spanish](#)

[OSHA video: Respiratory Protection for Health Care Workers](#)

[NIOSH Disposable Respirator Donning and Doffing Poster—English and Spanish](#)

[APIC PAPR Donning and Doffing Poster](#)

[Sample Mask and Respirator Flyer*](#)

** Adapted from material provided by Mercy General Hospital, Sacramento, CA*

Improving Respiratory Protection Programs in California Hospitals: Useful Web Links

www.cdph.ca.gov/programs/ohb/Pages/HCTResp.aspx

Regulatory Standards

Cal/OSHA Respiratory Protection Standard

www.dir.ca.gov/title8/5144.html

Cal/OSHA Aerosol Transmissible Diseases Standard

www.dir.ca.gov/title8/5199.html

Public Health Guidelines

CDPH Guidance for Influenza Prevention in Health Care Settings Nov. 5, 2010

www.cdph.ca.gov/programs/immunize/Documents/CDPHGuidanceFluPreventionHCS20101105.pdf

CDC Guidelines and Recommendations for Prevention Strategies for Seasonal Influenza in Healthcare Settings

www.cdc.gov/flu/professionals/infectioncontrol/healthcaresettings.htm

Cal/OSHA Guidance for the 2010-2011 Influenza Season regarding the Application of the Aerosol Transmissible Diseases Standard Nov. 5, 2010

www.dir.ca.gov/dosh/Cal-OSHA_influenza_guidance_11-5-10.pdf

Pandemic Influenza Preparedness and Response Guidance for Healthcare Workers and Healthcare Employers

www.osha.gov/Publications/3328-05-2007-English.html#RespiratoryProtectionforPandemicInfluenza

IOM Preventing Transmission of Pandemic Influenza and Other Viral Respiratory Diseases: Personal Protective Equipment for Healthcare Personnel Update 2010

www.iom.edu/Reports/2011/Preventing-Transmission-of-Pandemic-Influenza-and-Other-Viral-Respiratory-Diseases.aspx

General Respiratory Protection Resources

National Institute for Occupational Safety and Health (NIOSH) Respirator Topic Page

www.cdc.gov/niosh/topics/respirators/

NIOSH Respirator Trusted-Source Information Page

www.cdc.gov/niosh/npptl/topics/respirators/disp_part/RespSource.html

NIOSH Respirator Selection Logic

www.cdc.gov/niosh/docs/2005-100/default.html

NIOSH Science Blog: N95 Respirators and Surgical Masks

<http://blogs.cdc.gov/niosh-science-blog/2009/10/n95/>

OSHA Respirator Topic Page

www.osha.gov/SLTC/respiratoryprotection/index.html

Federal OSHA Respirator eTool. Learn how to select appropriate respirators and develop a change schedule for cartridges.

www.osha.gov/SLTC/etools/respiratory/index.html

Cal/OSHA practical guide for setting up a respiratory protection program for small businesses.

www.dir.ca.gov/dosh/dosh_publications/respiratory.pdf

American Industrial Hygiene Association (AIHA) List of Consultants—search by specialty for help with respiratory protection.

webportal.aiha.org/Custom/ConsultantsSearch.aspx

The Association of Occupational and Environmental Clinics directory of member clinics. These clinics provide medical clearance for respirator use, may provide fit testing services, and meet certain criteria for quality patient care.

www.aoec.org/directory.htm

AOHP Fit Test Card

www.aohp.org

Click on Tools for Your Work, then Free Publications, then A Tool to Make N95 Fit Testing Easier

Professional Education in Respiratory Protection

Respiratory Protection Course provided by the OSHA Training Institute at the UC San Diego Extension

osha.ucsd.edu/index.cfm?vAction=singleCourse&vCourse=FPM-40303

NIOSH Educational Resource Centers

niosh-erc.org/courses/index.shtml

COEH at UC Berkeley provides a variety of courses during their summer institute—check web site or contact Barbara Plog for upcoming schedule

www.coehce.org

UCLA and UC Irvine provide health and safety training—check for class schedule

www.ph.ucla.edu/erc/ced.php

AIHA online course in Respiratory Protection Management

www.aiha.org/education/dl/Pages/RespiratoryProtectionManagementCurrentIssues.aspx

Training Tools and Educational Materials

OSHA Respirator Training Videos

www.osha.gov/SLTC/respiratoryprotection/index.html

Click on Respirator Training Videos (at right) or scroll down to find:

The Difference Between Respirators and Surgical Masks (English or Spanish)

Respirator Safety (English or Spanish)

Respiratory Protection for Healthcare Workers

CDC Tools for Protecting Healthcare Personnel—video and slideshow on selecting/using PPE

www.cdc.gov/HAI/prevent/ppe.html

Washington State Department of Labor and Industries Respirator Training Kit

<http://www.lni.wa.gov/Safety/TrainTools/Trainer/Kits/Respirators/#SlideShowFiles>

OSHA Quick Card on types of respirators

www.osha.gov/OshDoc/data_Hurricane_Facts/respirators.pdf

OSHA Fact Sheet: Respiratory Infection Control: Respirators Versus Surgical Masks

<http://www.osha.gov/Publications/respirators-vs-surgicalmasks-factsheet.html>

NIOSH poster: How to Properly Put on and Take Off a Disposable Respirator

www.cdc.gov/niosh/docs/2010-131/

Listing of approved surgical N95s with donning/doffing instructions

www.cdc.gov/niosh/npptl/topics/respirators/disp_part/RespSource3.html#fda

University of Wisconsin PAPR Training Workshop Presentation

www.med.wisc.edu/papr-workshop

Respiratory Protection Program Evaluation Checklist & Instructions for Use

1 Y N Is there a written policy which acknowledges employer responsibility for providing a safe and healthful workplace?

2 Y N Has an individual been designated as the respiratory protection program administrator (RPA) with overall responsibility for development and implementation of the respiratory protection program?

Does the written respiratory protection program include the following required elements? (items 3-12)

3 Y N written designation of a program administrator;

4 Y N an evaluation of hazards and identification of appropriate respirators for specific job classifications and/or tasks;

5 Y N procedures for medical evaluations of employees required to use respirators;

6 Y N fit testing procedures for tight-fitting respirators;

7 Y N procedures for proper use of respirators;

8 Y N procedures and schedules for storage, inspection, and maintenance of respirators;

9 Y N procedures for training employees regarding the respiratory protection program;

10 Y N a description of the training curriculum;

11 Y N procedures for voluntary use of respirators;

12 Y N procedures for regular evaluation of the program;

13 Y N Is the written program readily available to any employee included in the program?

14 Y N Is there a record of medical clearance for each employee required to wear a respirator?

15 Y N Is there a record of a fit test or fit test screening for each respirator user from within the last year?

16 Y N Have users been trained in the proper use, maintenance, and inspection of respirators?

- 17 Y N Are workers prohibited from wearing respirators with a tight-fitting facepiece if they have facial hair or other characteristics which may cause face seal leakage?
- 18 Y N Are respirators stored appropriately so as to prevent them from becoming damaged or deformed?
- 20 Y N Are the users wearing the respirator for which they have passed a fit test?
- 21 Y N Are N95, or more protective, respirators always worn by employees in areas occupied by a suspected or confirmed case of airborne infectious disease?
- 22 Y N Are PAPRs always worn by employees in areas where a high hazard procedure is being performed on a suspected or confirmed case of airborne infectious disease?
- 23 Y N Are N95, or more protective, respirators always worn by employees in areas where a high hazard procedure is being performed on a suspected or confirmed case of seasonal influenza?
- 24 Y N Are respirators inspected by the users before each use?
- 25 Y N Are respirators being donned and doffed correctly?
- 26 Y N Are PAPRs cleaned and disinfected as often as necessary, including before being worn by a different individual?
- 27 Y N Is there a mechanism for users to report problems with respirator use?
- 28 Y N Is there a mechanism for users to provide feedback about the effectiveness of the program?

Checklist Instructions

This checklist should be completed and used to update any deficiencies in the program on a regular basis. Any changes made to the program should be documented and kept on file with the written program, which must be available to all employees. List the changes or improvements that need to be made to the program.

1. In California, every employer has a legal obligation to provide and maintain a safe and healthful workplace for employees, according to the California Occupational Safety and Health Act of 1973. This obligation should be stated in writing as a reason for developing and implementing a respiratory protection program (RPP), and can serve as the opening paragraph of your written RPP. If you do not have such a policy in writing for your facility, it would be a good idea to develop one as a preface to all of your health and safety programs.

Question 2 asks whether management has designated an appropriate person to be held accountable for implementing the respiratory protection program. The Cal/OSHA standard requires the Respirator Program Administrator (RPA) to be "suitably trained." The RPA should have an understanding of the principles of respiratory protection and of the requirements of the Cal/OSHA respiratory protection standard (Title 8 section 5144). If your RPA is not a health and safety professional, he/she might need some additional training to effectively carry out their responsibilities.

The Cal/OSHA respiratory protection standard (Standard) requires all employers with employees who are required to use respiratory protection to have a written RPP. Questions 3-12 refer to the written program.

Check the written RPP to be sure each of the required elements is present and in compliance with the Standard.

3. One individual should be identified either by name or job title as the RPA. If additional people have key responsibilities for the RPP, their names and roles may be listed as well.

4. The hazard evaluation/respirator selection section of the RPP should include a list of job titles and/or tasks and identify the type of respirator required for each. This should just be general type (e.g., N95 or PAPR), not specific make and model.

5. Written procedures should address how employees are to obtain and complete the questionnaire, who will evaluate the questionnaire, who will do exams when necessary, how clearance will be reported and how records will be kept. You may attach or copy and paste the questionnaire from the standard.

6. Written fit test procedures should address the following questions. Who will do the fit test? What protocol will be used? You may copy and paste or attach the protocol from the standard. What will happen if someone fails the fit test? How are records kept?

7. Procedures for use should include policies for prohibition of use (e.g., facial hair), procedures for proper use including inspection of the respirator, seal checks, proper donning and doffing technique, etc.

8. Procedures should address appropriate storage, maintenance, disposal and/or cleaning and disinfecting of all types of respirators used at the facility.

9. The training section of the RPP should include the procedures for training (e.g., who will do it and how often)

10. The training section should also include the training curriculum, which must include: the hazards to which employees are exposed; the procedures for proper use and maintenance of respirators; and the limitations of the respirators being used.

11. In instances when respirators are not required by Cal/OSHA or the RPP, the Standard allows employers to provide respirators to employees who choose to wear them voluntarily. When such voluntary use is allowed, the employer must implement procedures to ensure that the use of the respirator does not present a hazard to the employee, including medical clearance.

12. Procedures for periodic evaluation of the RPP must be in writing and must include procedures for obtaining feedback from employees as part of the evaluation process.

Question 13 addresses the requirement that the written RPP must be available for review to anyone in the program. It may be in a central file accessible to employees, or it may be available in electronic format, but users must know where to find it.

In order to answer questions 14 and 15, you will need to pull the records on medical evaluations and fit tests and make sure that they are comprehensive. If records are missing for any employees wearing respirators, you must determine immediately whether the records are simply missing, or if the person has really not been evaluated or fit tested. Any time you discover missing records, you should rectify this immediately.

Question 16 may also be answered by pulling records if your facility is tracking who has been trained. If there is not an easy way to obtain this information, you should consider either tracking this electronically, or keeping a training roster in a file so that you can easily determine who has and has not been trained. If there is anyone wearing a respirator who has not been trained, this should also be rectified immediately.

In order to answer questions 18–26, you will need to go to the units and observe the program in action. Watch carefully to ascertain whether or not the procedures in the written program are being followed. If they are not, you will need to determine whether additional training is needed or whether your procedures should be revised.

Questions 27 and 28 address procedures for communication and feedback that should be in place for employees covered by the RPP.

Question 27 addresses whether or not there is a way for users to report any specific problems they are having on a day-to-day basis. Is their model and size of respirator unavailable? Are the straps of their N95 breaking during donning? Are they experiencing discomfort or difficulty breathing when wearing respirators for required time periods? Are they unable to get a good seal when they perform a seal check? Do they know who to report these problems to?

Question 28 addresses whether or not employees are involved in the periodic evaluation of the program. Is there a way for them to communicate general problems or ideas for improvement to the RPA so that appropriate changes to the program will be considered when the program is evaluated?

Respirator Selection Guide for Aerosol Transmissible Diseases

The employer is responsible for selecting a respirator appropriate for the hazard and the environment.

Disease	Job Task	Respirator
Airborne infectious disease* (suspected or confirmed)	Routine patient care & support operations	At least N95
	High hazard procedures**	At least PAPR
Seasonal Influenza (suspected or confirmed)	Routine patient care & support operations	In accordance with facility policy; CDPH recommends at least permitting optional N95 use
	High hazard procedures**	At least N95
Other diseases requiring droplet precautions***	In accordance with facility policy	

* See list on reverse or in Appendix A of ATD Standard

** See definition on reverse or in ATD Standard

*** See list on reverse or in Appendix A of ATD Standard

CAL/OSHA ATD STANDARD— DISEASES/PATHOGENS REQUIRING AIRBORNE INFECTION ISOLATION

(designated in the standard as “airborne infectious diseases” or AirlDs)

Aerosolizable spore-containing powders such as Anthrax/Bacillus anthracis

Avian influenza/Avian influenza A (strains capable of causing serious disease in humans)

Varicella disease (chickenpox, disseminated shingles)

Measles (rubeola)/ Measles virus

Monkeypox/Monkeypox virus

Severe acute respiratory syndrome (SARS)

Smallpox (variola)/Variola virus

Tuberculosis (TB)/Mycobacterium tuberculosis

Novel or unknown pathogens as defined by the standard

Any other disease for which public health guidelines recommend airborne infection isolation

CAL/OSHA ATD STANDARD— HIGH HAZARD PROCEDURES DEFINITION

High hazard procedures are “procedures performed on a person who is a case or suspected case of an aerosol transmissible disease (or on a specimen suspected of containing an aerosol transmissible pathogen in a laboratory), in which the potential for being exposed to aerosol transmissible pathogens is increased due to the reasonably anticipated generation of aerosolized pathogens.”

Such procedures include, but are not limited to:

- Sputum induction
- Bronchoscopy
- Aerosolized administration of pentamidine or other medications
- Pulmonary function testing
- Autopsy, clinical, surgical, and laboratory procedures that may aerosolize pathogens.

CAL/OSHA ATD STANDARD— DISEASES/PATHOGENS REQUIRING DROPLET PRECAUTIONS

Diphtheria pharyngeal

Epiglottitis, due to Haemophilus influenzae type b

Haemophilus influenzae Serotype b (Hib) disease/Haemophilus influenzae serotype b—Infants and children

Influenza, human (typical seasonal variations)/influenza viruses*

Meningitis

Haemophilus influenzae, type b known or suspected

Neisseria meningitidis (meningococcal) known or suspected

Meningococcal disease sepsis, pneumonia (see also meningitis)

Mumps (infectious parotitis)/Mumps virus

Mycoplasmal pneumonia

Parvovirus B19 infection (erythema infectiosum)

Pertussis (whooping cough)

Pharyngitis in infants and young children/Adenovirus, Orthomyxoviridae, Epstein-Barr virus, Herpes simplex virus,

Pneumonia

Adenovirus

Haemophilus influenzae Serotype b, infants and children

Meningococcal

Mycoplasma, primary atypical

Streptococcus Group A

Pneumonic plague/Yersinia pestis

Rubella virus infection (German measles)/Rubella virus

Severe acute respiratory syndrome (SARS)

Streptococcal disease (group A streptococcus)

Skin, wound or burn, Major

Pharyngitis in infants and young children

Pneumonia

Scarlet fever in infants and young children

Serious invasive disease

Viral hemorrhagic fevers due to Lassa, Ebola, Marburg, Crimean-Congo fever viruses (airborne infection isolation and respirator use may be required for aerosol-generating procedures)

Any other disease for which public health guidelines recommend droplet precautions